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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/682,050 | 10/09/2003 | Sidney E. Clark | 03014/1086 | 8135 |
| 4743 | 7590 | 03/13/2006 | EXAMINER | |
| MARSHALL, GERSTEIN & BORUN LLP 233 S. WACKER DRIVE, SUITE 6300 SEARS TOWER CHICAGO, IL 60606 | | | BARRY, CHESTER T | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1724 | |

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/682,050

Applicant(s)

CLARK ET AL.

Examiner

Chester T. Barry

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 19-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

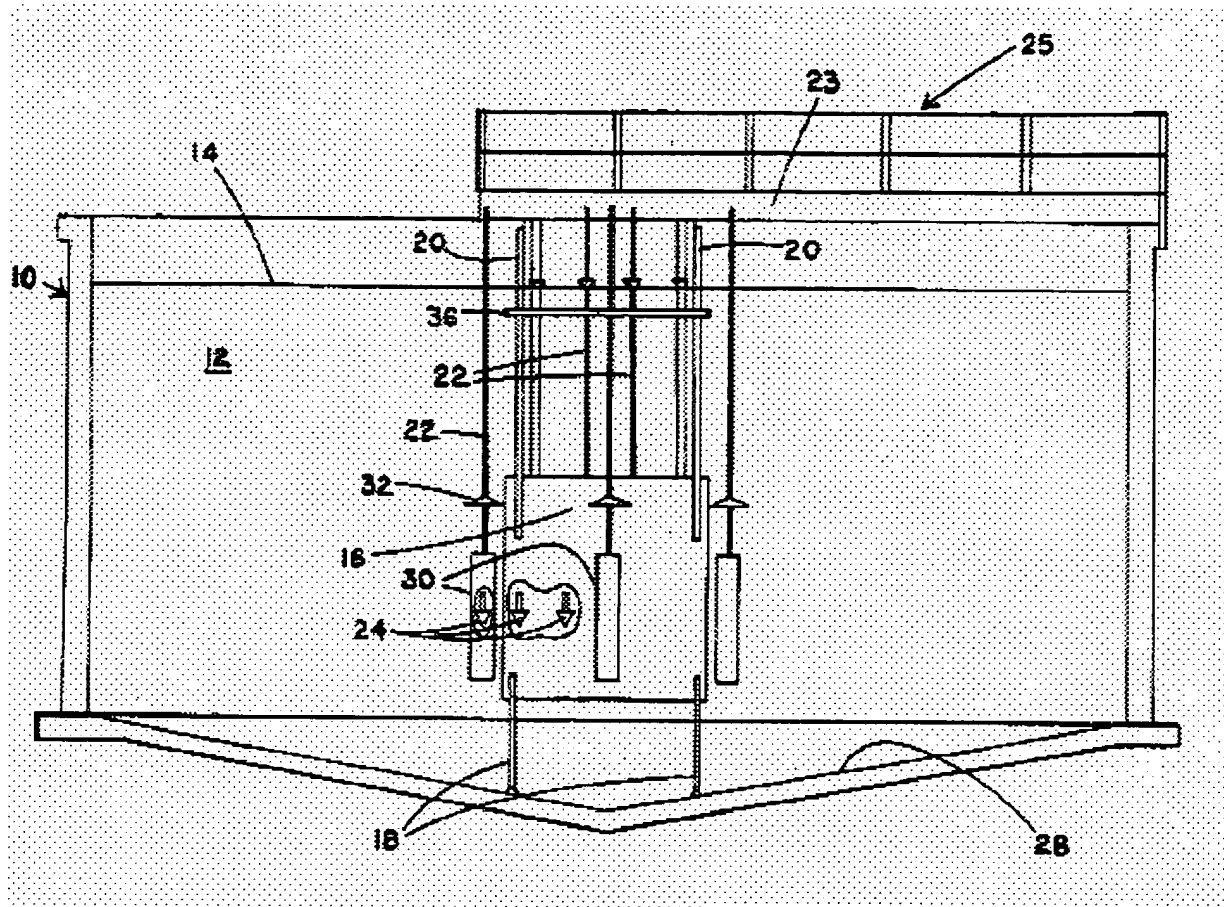
- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Applicant's election without traverse is noted with appreciation.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "near" in claim 10 is a relative term which renders the claim indefinite. The term "near" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 1 – 2, 4, 9, 10, 14 are rejected under 35 USC Sec. 102(b) as anticipated by USP 5779890 to Bailey.

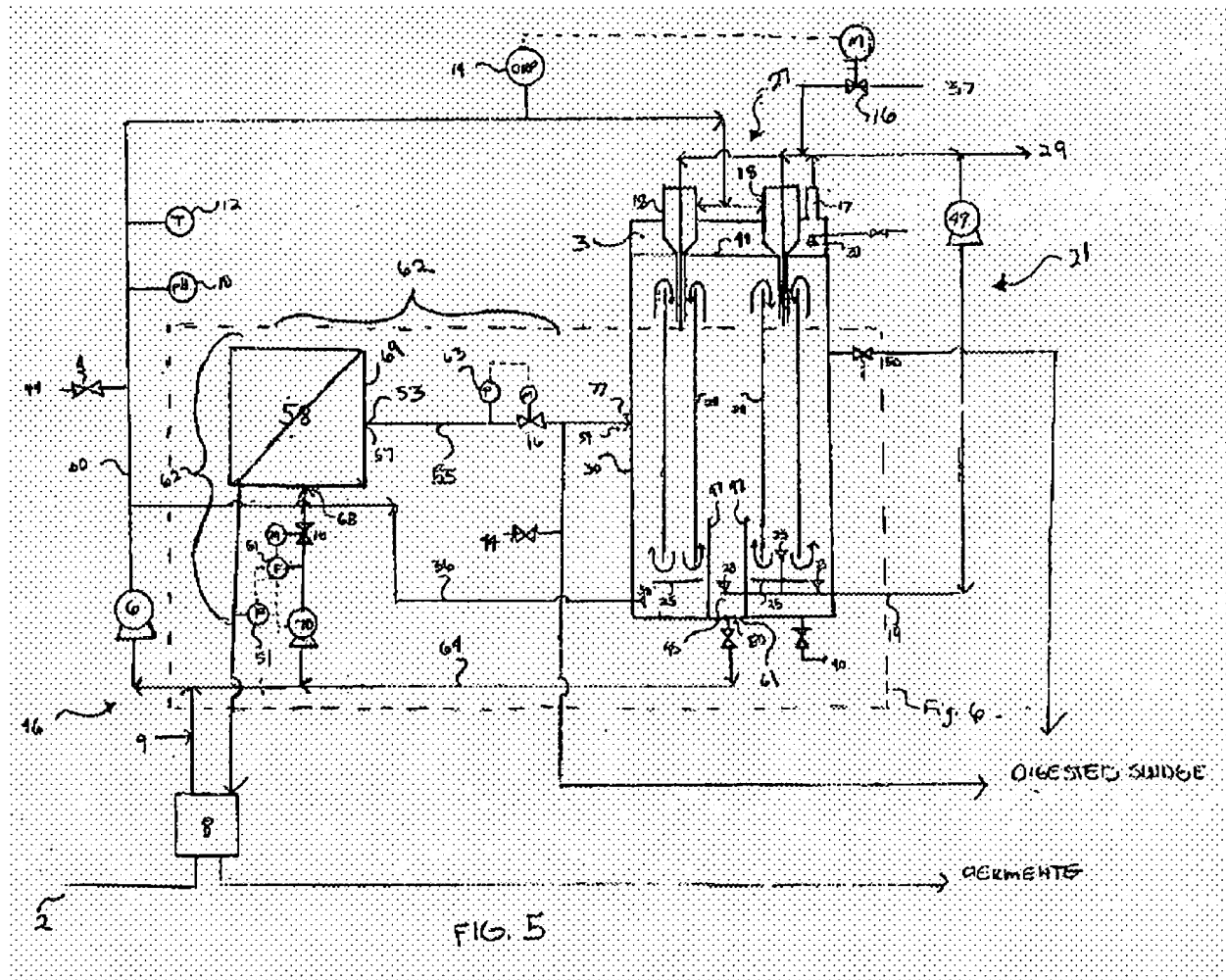
Fig. 1 of Bailey shows an anaerobic digester with a sloping bottom, a shell, a top section, and a middle section. The digester has a main central draft tube 16 and six peripheral draft tubes 30. The flow motivater, i.e., "means for pumping liquid," is methane gas (4/11). The upper and lower ends of the draft tubes are within the interior space of the shell.



The draft tubes may be symmetrical about the central axis, as in Fig. 1 or Fig. 11, but need not be, as in Fig. 7. Per claim 10, each draft tube is near the centerline. Per claim 14, see Fig 1A and Fig 1B flow lines.

Claims 5 – 6 are rejected under 35 USC Sec. 103(a) as obvious over Bailey in view of Lanting or 5942116 to Clark. Bailey does not describe a vessel with a top section having sloping sides, but Bailey says a variety of shaped vessels can be used.

Fig 5 of US 20020192809 to Lanting describes a digester having two draft tubes 28, each of which has an inlet and outlet within the shell of the digester.



Note: At least one of the inlet and outlet of structures 18 and 47 is not "in" the shell.

Paragraph [0008] teaches away from modification of the flat-bottom digesters described in Lanting to one having a bottom with sloped sides.

Clark describes use of egg-shaped anaerobic digesters.

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It would have been obvious to have used an egg-shaped anaerobic reactor because such shapes are common in this field notwithstanding certain known drawbacks, as noted by Lanting, or as suggested by Clark.

Claim 16 is rejected under 35 USC Sec. 103(a) as obvious over Bailey in view of Lanting. Bailey does not describe the volume of the vessel. Lanting teaches that the volume of the vessel should be such that the hydraulic residence time in the vessel is about 2 – 20 days (see [0034]). Lanting suggests vessels having a height of 25 – 75 ft, preferably 45 – 55 ft, and a height / diameter ratio of 0.2 – 20, preferably 1 – 4. Using these figures, the following estimated vessel volumes were calculated. The volume is expressed in millions of gallons. At least the vessel having a height of 75 feet at the preferred H/d ratio of 1 has a volume that is at least 1.5 MM gal., i.e., about 2.5 MM gal. Accordingly, it would have been obvious to have built a Bailer vessel at least as large as 1.5 MM gal., as suggested by Lanting.

Volume of Vessel (in MM gal)

| | H/d | | | |
|-------------|------|-----|-----|-----|
| height (ft) | 0.2 | 1 | 4 | 20 |
| 75 | 62.0 | 2.5 | 0.2 | 0.0 |
| 55 | 24.4 | 1.0 | 0.1 | 0.0 |
| 45 | 13.4 | 0.5 | 0.0 | 0.0 |
| 25 | 2.3 | 0.1 | 0.0 | 0.0 |

Claim 17 is rejected under 35 USC Sec. 103(a) as obvious over Bailey in view of Lanting and 5409610 to Clark. Per claim 17, Bailey does not clearly show an external liquid recirculation system, whereas Lanting and Clark '610 clearly do. It would have

been obvious to have provided the Bailey system with an external recirculation system because this feature is a standard feature of anaerobic sludge digesters, as shown by Lanting and Clark 5409610.

Claims 7 – 8, 26 are rejected under 35 USC Sec. 103(a) as obvious over DeVos taken in view of Bailey, Clark '610, or Clark 116. USP 5605653 to DeVos describes a 2 MM gal+ digester 5/60 having two axially aligned draft tubes 134, 110. Means for pumping liquid includes blower 265. A sloped bottom tank is not described in DeVos, but modification of DeVos in this respect would have been obvious in view of the widespread knowledge or use in the wastewater industry of anaerobic digesters having a bottom with sloped sides, as shown by the secondary references.

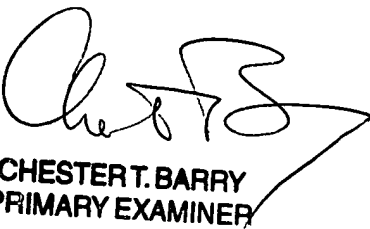
Claims 3, 11, 12, 13, 15, 18 are rejected under 35 USC Sec. 103(a) as obvious over DeVos taken in view of Bailey and Clark '610. USP 5605653 to DeVos describes a 2 MM gal+ digester 5/60 having two axially aligned draft tubes 134, 110. Means for pumping liquid includes blower 265. A sloped bottom tank is not described in DeVos, but modification of DeVos in this respect would have been obvious in view of the widespread knowledge or use in the wastewater industry of anaerobic digesters having a bottom with sloped sides, as shown by the secondary references. Clark '610 also suggests using jet pumps to induce flow of liquid through the draft tubes.

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JP 2005-185886 to Mitsubishi is cited as potentially of interest to Applicant, but this reference is not prior art.

JP 8-33900 is cited of interest for showing two off-center draft tubes. See Fig. 4.

571-272-1152



CHESTERT. BARRY
PRIMARY EXAMINER